

ABSTRACT OF THE DISCLOSURE

An optical transmission system capable of monitoring the operating status of Raman-amplifier repeaters even when an optical transmission line is partly disrupted by a fiber failure. An end station sends a monitoring command signal to request a particular repeater to report its operating status, together with a response carrier wave for use in that reporting. With their different wavelengths, an upstream wavelength selector in the repeater selectively passes the monitoring command signal while reflecting back the response carrier wave. Responsive to the command, a monitoring controller creates a response message containing operating status information. An excitation unit performs Raman amplification with a pump beam modulated by a modulation controller, so that the response message be superimposed on the response carrier wave propagating on the upstream link. The resulting monitoring response signal is routed from the upstream wavelength selector to a downstream optical coupler and sent back to the requesting end station.